

JOHNSON SPACE CENTER CONTINUITY OF OPERATIONS (COOP) PLANNING PROCEDURAL REQUIREMENTS, CHANGE 1 (9/2004)

Center Operations Directorate

June 8, 2004

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National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

JPR 1040.3
JSC Continuity of Operations (COOP) Planning
Procedural Requirements

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JPR 1040.3

EFFECTIVE DATE: June 8, 2004

EXPIRATION DATE: June 8, 2009

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Change Record

Rev.	Date	Originator/Phone	Description
Basic	6/8/2004	W. Roeh, 38133	Basic Plan
Change 1	9/2004	W. Roeh, 38133	Revised to reflect only requirements and correct document reference numbers. Clarify definition of COOP as Continuity of Operations. Add words plan or planning as appropriate.

Preface

P.1. Purpose.

P1.1 This Johnson Space Center (JSC) Procedural Requirements (JPR) provides JSC Management, Directors, Program Managers, and network administrators, with a step-by-step approach for assessing whether mission essential operations qualify for Continuity of Operations (COOP) plans and for preparing a plan. COOP plans must address long-term loss or short-term disruptions of primary mission-essential operations, supporting facilities, information technology (I/T) systems, and other essential interdependencies as required by NASA Policy Directive (NPD) 1040.4 and NASA Procedural Requirement (NPR) 1040.1.

P1.2 Integrates with the existing Emergency Preparedness Program the requirements necessary to properly address the steps to be taken to maintain mission-essential operations, or implement transfer of these mission-essential operations to alternate location(s), in the event of an emergency event causing long-term contingencies, losses, or disruptions to normal operations.

P.2. Applicability. The provisions of this JPR apply to JSC and the White Sands Test Facility.

P.3. Authority.

P.3.1.a. NPD 1040.4, “NASA Continuity of Operations”

P.3.1.b. NPR 1040.1, “NASA Continuity of Operations (COOP) Planning Procedural Requirements”

P.4. References. NPR 1040.1, ““NASA Continuity of Operations (COOP) Planning Procedural Requirements”

P.5. Cancellation. None.

CHAPTER 1. OVERVIEW OF COOP PLANNING

1.1 General

Chapter 1 defines when a COOP plan is required and what it must include.

1.1.1 JSC is required to have in place a viable COOP capability that ensures the performance of mission-essential operations during any type of emergency (natural disasters, terrorist events, or accidents) or other situation that may disrupt normal operations for the short or long-term. COOP plans must address how to keep an organization's mission-essential operations and supporting systems operating in case of long-term disruptions, or disastrous worst-case events that could destroy existing facilities.

Long-term loss or disruption is defined as a mission-essential operation, function, system or infrastructure having been damaged in such a manner that the normal operation, function, system, or infrastructure cannot be made operational within 30 days through the use of standard contingency and recovery planning. COOP plans are only required for operations, functions, systems or infrastructure which must achieve some level of operational status within 12 hours after the disaster event, in order for the agency to maintain the operation of its critical mission-essential functions. Other functions that may require some level of operability at some time interval greater than 12 hours should be covered by contingency planning.

COOP plans shall address the various disaster scenarios that would affect mission-essential functions for the long-term and short-term. These scenarios should include catastrophic failure or destruction of the mission-essential facility, i.e., a 9-11 World Trade Center event, disasters that would interrupt electrical power to the facility for days or weeks such as a site substation fire or explosion (for Mission Control, the loss of Building 48), and any other disaster that would dictate alternate facilities need to be activated to support required mission-essential operations.

Mission-essential operations, functions, systems or infrastructure must also meet one or more of the criteria as outlined in paragraph 3.1.1 and 3.1.2 in order for the requirement to develop COOP plans to be applicable.

Each organization shall develop a functional activities list of mission-essential operations, dependent systems and infrastructure using the criteria of 3.1.1 and determine if the functions must be operational within 12 hours of a disaster. Qualifying activities, if any, shall be further evaluated for a formal COOP plan (per attachment B). This listing shall be provided to the JSC COOP Coordinator and be evaluated on an annual basis by June 1 of each year.

For mission-essential operations, functions, systems, or infrastructure that do not meet the requirements for COOP plan development as defined above and can only be restored by replacement of facilities, each organization should develop restoration plans for these systems and include them as part of their business plans. NPR 1040.1 Chapter 4 may help as instruction for restoration plan development. Restoration plans should make provisions for maintaining and updating on an annual basis configuration control drawings, listing of equipment/hardware (detail characteristics), operating software, and databases. Restoration software and databases must be maintained in a controlled environment in a safe zone away from the Center so that this

vital information will allow restoration to be implemented as quickly as possible. In most instances, the Center's existing I/T security plans address contingency issues that will support restoration planning. Each organization shall submit a list of planned and completed restoration plans annually on December 10th to the COOP Coordinator.

1.1.2 Viable COOP plans must (1) be maintained at a high level of readiness; (2) be capable of being implemented with and without warning; (3) be operational within 12 hours of activation; (4) maintain sustained essential operations for a minimum of 30 days; and (5) take maximum advantage of available field infrastructure, existing Agency emergency preparedness program procedures, and established I/T security plans.

1.1.3 The Computer Security Act of 1987 and OMB Circular A-130 require security plans for Federal Automated Information Systems. These existing I/T security plans include emergency response procedures for information systems to rapidly and effectively deal with the potential disruption of any I/T-based mission-essential function and form an existing base from which to develop COOP documents. I/T security plans shall be evaluated to assure that they provide for all types of emergency situations as described in paragraph 1.1.1.

1.1.4 This JPR summarizes requirements from NPR 1040.1 and is presented in the same format. This JPR also provides specifics for JSC evaluations for COOP plans.

1.2 Goals of COOP Planning

The goals of COOP planning are to (1) ensure continuous performance of NASA's mission-essential operations and functions during an emergency situation; (2) protect mission-essential NASA facilities, equipment, vital records, and other assets; (3) reduce or mitigate disruptions to mission-essential operations; (4) reduce loss of life; (5) minimize damage and losses; and (6) resume full, normal essential operations to our customers through a timely and orderly recovery from an emergency.

1.3 Elements of a Viable COOP Plan Capability

1.3.1. At a minimum, the plan shall:

- a. Delineate mission-essential operations and functions.
- b. Establish an order of succession for key leadership positions.
- c. Identify minimal communications capabilities required to support COOP.
- d. Identify essential and vital records and databases required to support essential operations and functions, and include steps for protecting them as well as procedures for backup, storage, recycling, and retrieval.
- e. Outline a decision process for determining appropriate actions in implementing COOP procedures.
- f. Establish a roster of fully equipped and trained continuity team personnel, with the authority to perform mission-essential operations and functions, and establish procedures for

training these personnel in the roles to be performed under COOP plan implementation. Training shall occur on an annual basis.

- g. Include plans and procedures for employee advisories, alerts, and COOP plan activation, with instructions for relocation to predesignated facilities, with or without warning, during duty and nonduty hours.
- h. Provide for personnel accountability and safety throughout the duration of the emergency.
- i. Provide for attaining functional capability, normally within 12 hours.
- j. Establish reliable processes and procedures to acquire the resources necessary to continue mission-critical essential operations and sustain mission-essential operations for a minimum of 30 days.
- k. Establish reliable processes and procedures to identify and transition to alternate operational locations if the need arises.
- l. To the maximum extent possible, integrate existing emergency preparedness and I/T security plans to ensure consistency in overall emergency preparedness program approaches.
- m. Provide for annual exercises or tests to ensure viability.
- n. Provide for restoration planning.

1.4 Sensitivity Level of COOP Documents

1.4.1. A COOP plan, as are all emergency preparedness documents, is a “Administratively Controlled Information (ACI)” document.

1.4.2. A COOP plan is deemed “Administratively Controlled Information (ACI),” and shall be handled in accordance with NPR 1620.1, Security Procedural Requirements, as amended.

1.4.3. Electronically stored and distributed copies of the COOP plan must be protected from unauthorized access. Electronic distribution should always be encrypted. COOP plans should never be posted on any website.

CHAPTER 2. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

2.1 Responsibilities

All directorates, in coordination with program managers, are responsible for evaluation of mission-essential infrastructure, operations, functions, facilities, and other essential interdependencies for consideration for COOP planning. A criticality matrix evaluation shall be performed to determine specific areas/activities that require a COOP plan.

2.2 Center Director

The Center Director is responsible for:

- a. Appointing a Center COOP Coordinator. The Center COOP Coordinator shall be a senior staff member from either the Information Resources Directorate (IRD) or Center Operations Directorate Emergency Services organization.
- b. Emphasizing emergency preparedness and COOP readiness as part of the Center's core mission.
- c. Ensuring the Center Chief Financial Officer (CFO) provides necessary assistance to COOP activity.

2.3 Chief Information Officers (CIO)

The CIO is responsible for:

- a. Ensuring JSC's and WSTF's I/T systems have the appropriate security and contingency plans, as required under OMB Circular A-130.
- b. Ensuring Special Management Attention (SMA) systems are evaluated for COOP.

2.4 Center COOP Coordinator

The JSC COOP Coordinator is responsible for:

- a. Coordinating the development and consolidation of all COOP plans for JSC's mission-essential infrastructure assets and operations in accordance with requirements established in NPR 1040.1 and established emergency preparedness plans.
- b. Coordinating with the Agency COOP Coordinator and individual organizational management, scheduling, and overseeing yearly training and exercises, as required.
- c. Reviewing COOP plans for conformance to NPR 1040.1.
- d. Coordinating the annual review of all COOP plans.
- e. Review of restoration plans as noted in paragraph 1.1.

- f. Assessing and developing a COOP plan for essential management operations.
- g. Providing a list of Mission Essential Infrastructure (MEI) to Directorate and Program COOP managers.

2.5 Directors and Program Management

The Directors and Program Management are responsible for:

- a. Assigning a COOP manager for their directorate or program.
- b. Ensuring the development, implementation, maintenance, and testing of COOP plans, when required, in accordance with the requirements in this JPR, NPR 1040.1, and other references.
- c. Coordinating all program COOP planning activity with the Center COOP Coordinator.
- d. Ensuring that COOP plan requirements are included in the organization's budget activity.

2.6 Chief Financial Officer (CFO)

The CFO as requested by the directors is responsible for:

- a. Establishing a COOP funding mechanism.
- b. Assisting Center management on COOP budget development.
- c. Providing systems that shall account for COOP expenditures.

2.7 Vital Records Manager

The Vital Records Manager shall be responsible for ensuring that local policies and procedures are developed and implemented for the identification, designation, protection, and retrieval of Center vital records in accordance with NPD 1440.6, NASA Records Management, and other governing policy and regulations.

CHAPTER 3. CONTINUITY OF OPERATIONS PLANNING PROCESS

3.1. COOP PLANNING CRITERIA

3.1.1 Directors shall assess JSC's Mission Essential Infrastructure (MEI) as defined in NPR 1620.1, supporting operations, and other interdependencies, and evaluate that infrastructure from a risk to the national welfare perspective, which by themselves or as a result of a Memorandum of Understanding, or other agreement with another Federal agency, must continue to operate or remain capable to operate at the primary or an alternate location under all emergency circumstances. The following criteria shall be used to determine if a COOP plan is required and are shown as a decision tree in Attachment A:

- a. Would the loss of a JSC's MEI capability or operation compromise national security?
- b. Would the loss of JSC's mission-essential infrastructure capability or operation have an immediate and significant adverse effect on the health and safety of the general public at large?
- c. Is JSC's mission-essential capability or operation critical to the performance of another agency's COOP essential operations and required, by agreement, to remain viable, without interruption, under all emergency conditions?
- d. Is the mission-essential capability or operation regulated, legislated, or directed by Executive Order to operate under all emergency scenarios?
- e. Is the mission-essential capability or operation tied into a space exploration vehicle and equipment command and control operations that if rendered inoperable, would place personnel, vehicles, and/or equipment at risk?
- f. Is the mission-essential capability or operation deemed a vital service, as determined by NASA management and, therefore, required under COOP planning?

3.1.2 The ability for JSC's senior management to continue to manage the Center during a disastrous event is inherently critical to NASA and the U.S. Government. Essential management operations by definition will be included under a COOP plan.

3.1.3 JSC's assets identified as MEI may, due to their size, configuration, and age, be difficult and expensive or impractical to relocate to an alternate facility or rebuild if destroyed (e.g., Building 9, Chamber A, system trainers, Local Area Network (LAN), etc.). They should be carefully evaluated under COOP criteria to ensure that all aspects of their criticality and replaceability are thoroughly considered, before establishing a COOP plan. All recommended strategies of a COOP plan may not be applicable to all MEI.

3.2 Continuity of Operations Planning Process

3.2.1 Evaluation of Mission-Essential Operations

a. Each Directorate is responsible for evaluating their mission-essential operations to determine which operations meet the criteria for development of a COOP plan. Those that meet the criteria should be analyzed and prioritized with respect to the requirements for resumption, recovery, or restoration of those operations.

The first step in determining if a COOP plan is required is to create a list of all of the organization's mission-essential operations, dependent systems and infrastructure. Next, this list is to be compared to the COOP planning criteria listed in paragraph 3.1.1. If the item listed (functional activity) does not meet any of the criteria, a COOP plan is not required for this activity. For those functional activities that meet one or more criteria, a COOP plan is required, provided they meet the implementation time constraints defined in paragraph 1.1.1. See Attachment A for a decision tree and Attachment B for record keeping. Each Directorate shall provide a copy of the completed Attachment B to the JSC COOP Coordinator:

In many cases, fully redundant capability is prohibitively expensive and those operations will not be continued or be required to be performed in case of a disaster. These functions/operations should then only be addressed with a restoration plan. Of primary concern in these cases is the protection of configuration control documentation, engineering drawings, software and data so that restoration may be accomplished as efficiently as possible.

b. COOP identifies the actions which must be implemented to mitigate the effects of each potential hazard, when these actions need to be implemented, and sets priorities and time criticalities for implementing each supporting activity.

c. For each mission-essential operation that has been determined to require a COOP plan, a listing of all functional activities and supporting operations for this element should be created, a criticality matrix developed, and a criticality determination performed. (refer to NPR 1040.1 paragraphs 3.3.1.g, h, and i). This analysis shall serve as the basis for establishing and organizing the COOP plan.

d. Each COOP plan should address, as applicable, all items in NPR 1040.1 paragraphs 3.3.2 through 3.3.8.

CHAPTER 4. Continuity of Operations Planning - Concept of Operations

4.1 Continuity Process Overview

Chapter 4.0 of NPR 1040.1 shall be used as the procedural requirements for development of elements and activities needed in a comprehensive COOP plan. The COOP plan shall address prevention, emergency response, plan activation, resumption, recovery, restoration, and recovery deactivation. COOP plans must define what elements of the plan are currently in place (no cost to implement), i.e., contingency plans, I/T security plans, etc., and the estimated cost involved for implementing each phase of the plan delineated by individual support elements.

4.2 Plan Maintenance

4.2.1 For COOP plans that are in the development phase, each Directorate shall provide a status of COOP plan development to the JSC COOP Coordinator by June 10th and December 10th of each year.

4.2.2 Each directorate shall review and update approved COOP plans annually and document their review to the JSC COOP Coordinator by December 10th of each year.

4.2.3 Electronic copies of current approved COOP plans shall be provided to the JSC COOP coordinator.

4.2.4 Responsibility for maintaining specific sections of the COOP plans resides with each Directorate COOP Manager. The Directorate COOP Managers may utilize team leaders for implementation of the plans. The Directorate COOP Managers have the responsibility to assure all the duties ascribed to team leaders in NPR 1040.1 are performed and documented.

4.2.5 The Directorate COOP Managers are responsible for maintaining updated personal contact information for all individuals responsible for specific COOP plan activities.

4.2.6 The Directorate COOP Managers are responsible for initiating scheduled COOP plan maintenance activities. COOP plan semi-annual reviews shall be conducted and documented. Should a plan review necessitate changes or updates, the Directorate COOP Managers are responsible for implementing the changes and issuing updated plan documentation. The JSC COOP Coordinator shall be made aware of plan changes resulting from reviews.

4.3 Incident Alert

4.3.1 Initial notification of an incident or situation shall normally flow from the Center Operations Directorate Office of Emergency Management (OEM) to JSC senior management and to the Directorate COOP Managers. The OEM has the responsibility to notify NASA Headquarters of any significant JSC emergencies.

4.3.2 Notification instructions for COOP team members should be well defined within the COOP plan.

4.4 Plan Activation

4.4.1. Activation of the COOP plan shall only be executed when an emergency occurs that necessitates a response beyond the scope of daily standard operating procedures. In accordance with Center Emergency Preparedness Program Plans, only the Center Director or his/her designee may activate the entire plan, or any phase thereof, and/or declare a disaster situation for JSC.

4.4.2. Organizational COOP teams shall be activated only as directed by each Director and COOP Manager based on the impact of the disruption. Restoration priorities shall be established in response to the disruption. Initial focus should be on reestablishing essential office operations and ensuring that the restoration teams focus on communications, application, and program recovery priorities.

4.5 Reporting Structure

The Directorate COOP Managers shall develop a reporting structure for their COOP organization that reflects the overall team organization and reporting requirements that shall be employed during response, resumption, recovery, and restoration processes.

4.6 Unplanned Maintenance

Certain maintenance requirements are unpredictable. The majority of unscheduled changes occur as the result of major changes to service level agreements, hardware configurations, networks, and production processing. The Directorate COOP Manager is responsible for any required updates to the plan, which results from unscheduled changes. The JSC COOP Coordinator shall be made aware of any plan changes.

4.7 Plan Exercises or Tests

4.7.1 At a minimum, organizations having responsibility for COOP plan activity shall test and document the COOP plan response at least annually, using one or more of the suggested exercise types:

- a. Structured Walkthrough
- b. Tactical
- c. Live Production
- d. Simulation

4.7.2 Exercise or test results shall be documented as soon as possible, but no later than 2 weeks after completion of an exercise or test. Problems or weaknesses shall be identified with assigned corrective action plans identifying changes required to the COOP plan. A copy of the exercise or test results and corrective action plan shall be provided to the Center Director, the appropriate directorate management, the JSC COOP Coordinator and the Agency COOP Coordinator.

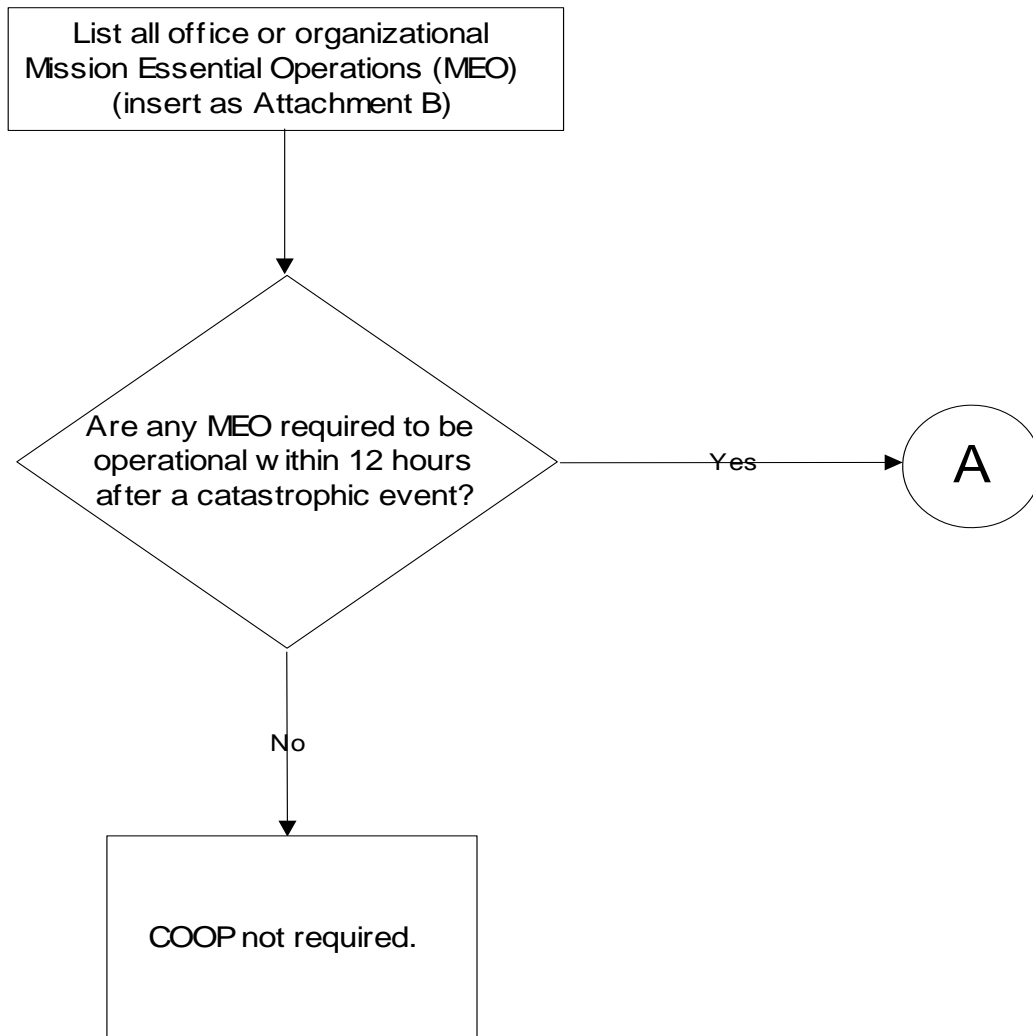
CHAPTER 5. Glossary of Terms, Abbreviations, and Acronyms

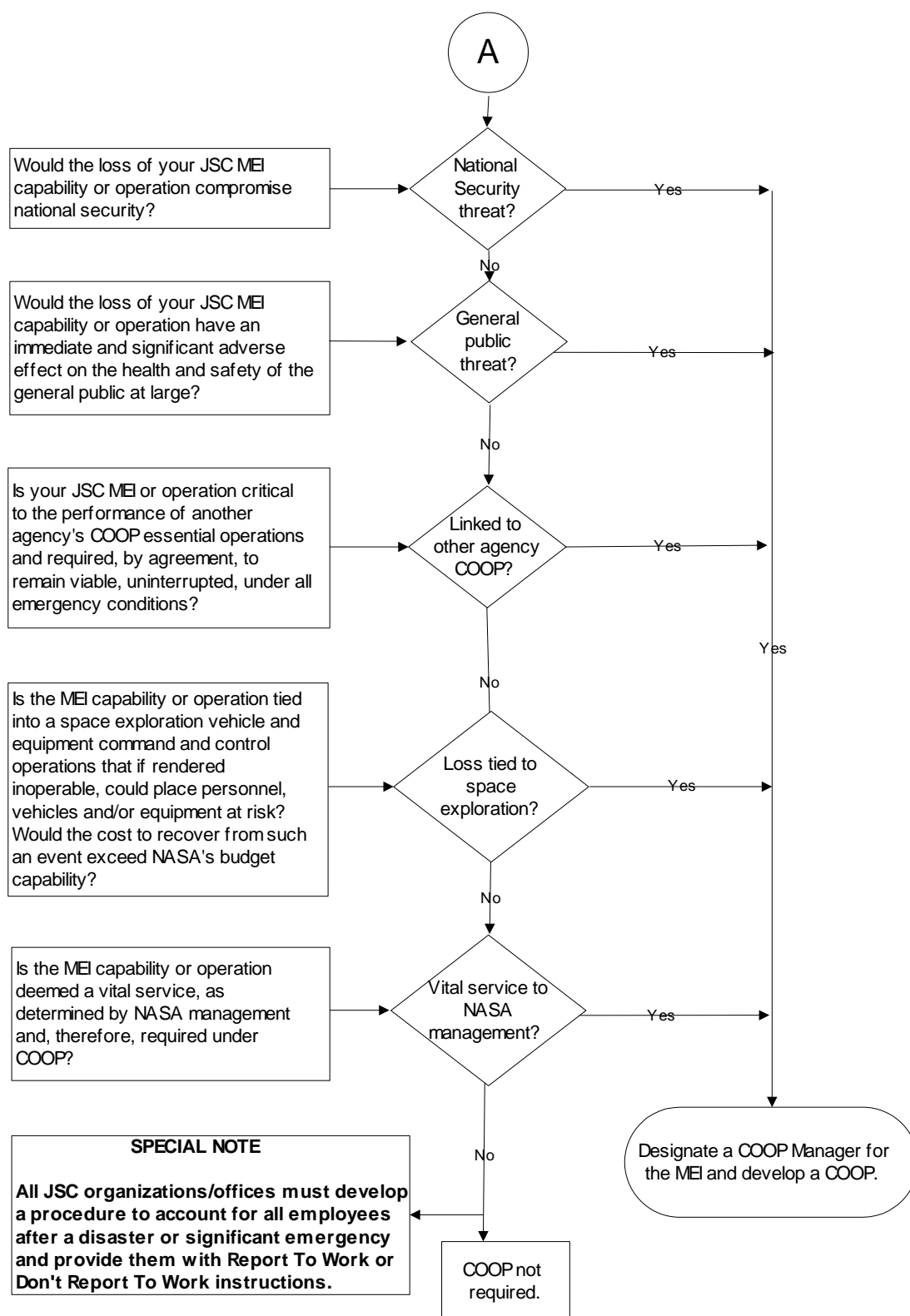
Refer to NPR 1040.1.

MEI	-	Mission Essential Infrastructure
MEO	-	Mission Essential Operations
OEM	-	Office of Emergency Management

**ATTACHMENT A
COOP CRITERIA DECISION TREE**

Do You Need a Continuity of Operations Plan?





ATTACHMENT B

EVALUATION OF FUNCTIONAL ACITVITIES

ORGANIZATION _____

Submitted by _____ Date _____

FUNCTIONAL ACTIVITIES – MEI and DEPENDENT SYSTEMS	CRITERIA FOR COOP PLANS (from 3.1.1) (Y or N)						COOP PLAN REQUIRED (Y or N)	Operational Need time/date after disruption (Days or Hours)	COOP PLAN ELEMENTS NEEDED (Y or N)				
	a.	b.	c.	d.	e.	f.	P R E V E N T I O N	R E S P O N S E	R E S U M P T I O N	R E C O V E R Y	R E S T O R A T I O N		

FUNCTIONAL ACTIVITIES – MEI and DEPENDENT SYSTEMS	CRITERIA FOR COOP PLANS (from 3.1.1) (Y or N)						COOP PLAN REQUIRED (Y or N)	Operational Need time/date after disruption (Days or Hours)	COOP PLAN ELEMENTS NEEDED (Y or N)				
	a.	b.	c.	d.	e.	f.			P R E V E N T I O N	R E S P O N S E	R E S U M P T I O N	R E C O V E R Y	R E S T O R A T I O N